HIGH-PERFORMANCE LOCK MANAGEMENT FOR FLASH COPY IN N-WAY SHARED STORAGE SYSTEMS

ABSTRACT OF THE DISCLOSURE

[0048] A method, system, and machine-readable medium for providing high-performance lock management for a flash copy image of a region of data in N-way shared storage systems is disclosed. According to one embodiment, a data processing system is provided which comprises a cache to store a copy of metadata specifying a coherency relationship between a region of data and a flash copy image of the region of data, wherein the metadata is subject to one or more lock protocols controlled by an owner storage controller node; and a client storage controller node, coupled with the cache, comprising an input/output performing component to receive a request to perform an input/output operation on at least one of the region of data and the flash copy image of the region of data and to perform the input/output operation utilizing the copy of the metadata.

(54) Title: HIGH-PERFORMANCE LOCK MANAGEMENT FOR FLASH COPY IN N-WAY SHARED STORAGE SYSTEMS
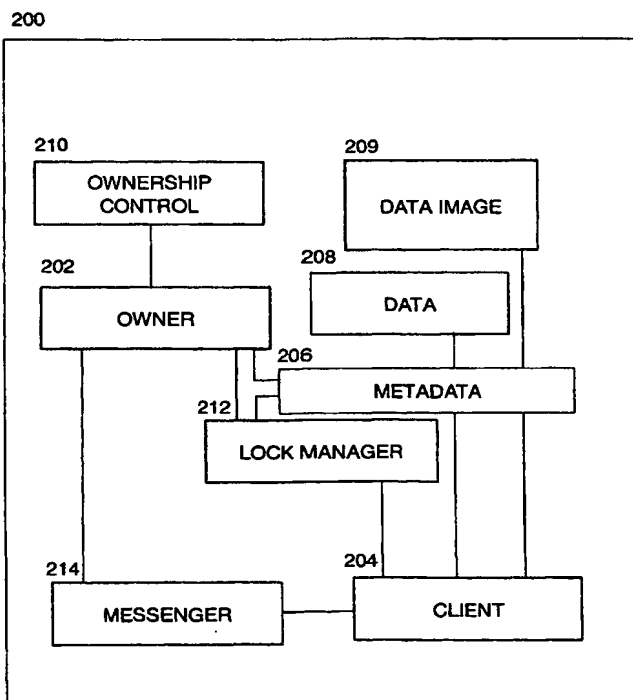
(57) Abstract: Storage control apparatus is operable in a network of storage controller nodes having an owner node operable to control locking of a region of data during I/O activity, a messaging component operable to request locks, grant locks, request release of locks and signal lock release. The apparatus comprises an I/O performing component to perform I/O on data owned by any owner node, subject to compliance with lock protocols controlled by the owner node. Any Flash Copy image of the region of data is maintained in a coherency relation with the region of data, and the I/O performing component is operable to cache a previous positive confirmation that the region of data has been left in a coherency relation with any said Flash Copy image, and to perform I/O activity on the basis of said previous positive confirmation.

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